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reaction. This accords with the evidence on the animal side, and stands in opposition to WASSILIEFF's view that asparagin is the immediate material from which plant proteins are synthesized, and to the PFEFFER view that proteins may be synthesized by the installation of  $\text{NH}_3$  into organic compounds without the amino acids as intermediate forms. ZALESKI raises the question whether the same enzymes cause both the condensation and hydrolysis. Both protease and rennin were found in the ripening seeds, but no tests were run for ereptase. The hydrolytic activity diminished as ripening progressed, due either to the destruction of the enzyme or to its transformation to an inactive form, for no evidence for an anti-enzyme could be found.—WILLIAM CROCKER.

**Potassium in plants.**—WEEVERS<sup>12</sup> has made a rather extensive study of the distribution of potassium in plants. He used, in the main, MACCALLUM's method of treating the tissues with sodium cobalt nitrite, followed, after thorough washing with water, by ammonium sulphide. He finds potassium in all plants except Cyanophyceae. The nucleus and chloroplast are always potassium-free, while the vacuole is rich in it, and the cytoplasm contains considerable. The writer believes, contrary to MACCALLUM, that these reagents are not capable of showing the localization of the potassium in the cell. The apparent localization found by the latter worker was probably largely due to precipitation determining the concentration gradients in both the reagent and the potassium salt. Essentially all the potassium found in the plant cell can be dissolved out of the dead cell with either water or 50 per cent alcohol, so the author believes the element exists in the form of inorganic salts and not as a part of the protoplasmic organic constituents. The pollen grains of *Tulipa* and *Crocus* are potassium-free, and will develop normal tubes in a potassium-free medium. In these cases then, among the higher plants, potassium is not necessary for growth. The absence of potassium in the chloroplasts is offered as fatal to the assumption of various workers that it plays an important rôle in photosynthesis. The author believes that his findings agree with the view that potassium in the growing point is connected with protoplasm construction, while in the vacuole it aids in the production of osmotic pressure. The facts reported in this work, agreeing in the main with those reported by MACCALLUM, show how little we know about the physiological rôle of potassium.—WILLIAM CROCKER.

**Development of Laminaria.**—The development of the Laminariaceae from spore to adult has been very little studied. YENDO<sup>13</sup> has studied the development of three forms, *Costaria Turneria*, *Undaria pinnatifida*, and *Laminaria* sp., and the results may be summarized as follows: The sporelings

<sup>12</sup> WEEVERS, TH., Untersuchungen über die Lokalisation und Funktion des Kalium in der Pflanzen. *Recueil des Travaux Bot. Néerl.* 8:289-332. figs. 3. 1911.

<sup>13</sup> YENDO, K., The development of *Costaria*, *Undaria*, and *Laminaria*. *Ann. Botany* 25:691-715. pls. 53-55. 1911.